

REMARKS

Claims 27-52 are pending and under current examination. In the Office Action, the

Examiner includes the following actions:

- (1) rejected claims 27-29, 31-37, 39-46, and 49-51 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Pub. No. 2003/0125046 A1 ("Riley") in view of U.S. Patent Application Pub. No. 2002/0101912 A1 ("Phelts");
- (2) rejected claims 30, 38, and 47 under 35 U.S.C. § 103(a) as being unpatentable over Riley and in view of Phelts and in further view of U.S. Patent No. 6,055,477 A ("McBurney"); and
- (3) rejected claims 48 and 52 under 35 U.S.C. § 103(a) as being unpatentable over Riley and in view of Phelts, and further in view of U.S. Patent No. 6,081,230 A ("Hoshino").

Applicants respectfully traverse the rejections for at least the reasons that follow.

Regarding the 35 U.S.C. § 103(a) Rejections

Applicants respectfully request reconsideration and withdrawal of the rejections of the claims under 35 U.S.C. § 103(a) as being unpatentable over one or more of Riley, Phelts, McBurney, and Hoshino. The Office Action has not properly resolved the *Graham* factual inquiries, the proper resolution of which is the requirement for establishing a framework for an objective obviousness analysis. See M.P.E.P. § 2141(II), citing to *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), as reiterated by the U.S. Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, 82 USPQ2d 1385 (2007).

In particular, the Office Action has not properly determined the scope and content of the prior art. Specifically, Riley, Phelts, McBurney, and Hoshino, whether taken alone or in any combination, do not teach or suggest what the Office Action attributes to them. In addition, the Office Action has not properly ascertained the differences between the claimed invention and the

prior art, at least because it has not interpreted the prior art and considered both the invention and the prior art as a whole. See M.P.E.P. § 2141(II)(B).

For example, the cited references, whether taken alone or in any combination, do not teach or suggest the features recited in independent claim 27. In particular, Riley does not teach or suggest at least the claimed “method for determining at least one location coordinate of a mobile terminal,” including, among other things, “providing in said statistical filtering at least one further state in addition to said at least one location coordinate, said at least one further state being representative of said measurement errors, wherein said represented errors are non-zero mean errors,” as recited in claim 27.

Claim 27, for example, recites “[a] method for determining at least one location coordinate of a mobile terminal” (emphasis added). In contrast, Riley discloses a method for determining location parameters of a base station using mobile stations. See Riley, Title and Abstract. Riley’s method “uses the mobile stations in communication with a base station for determining the location parameters of that base station.” *Id.* at ¶ [0012] (emphasis added). With respect to the position of a mobile station that is used to determine the location parameters of the base station, Riley teaches that “the network determines the position (value and error estimate) of the mobile station independent of the position of the base station in communication with the mobile station ... [f]or example, [through] a global satellite receiver ... using the GPS system ... [or based on] other base stations having know[n] positions.” *Id.* at ¶ [0077]. Riley, however, does not teach or suggest “[a] method for determining at least one location coordinate of a mobile terminal,” as recited in claim 27 (emphasis added). Thus, Riley does not teach or suggest at least the claimed “method for determining at least one location coordinate of a mobile terminal,” including, among other things, “providing in said statistical filtering at least one

further state in addition to said at least one location coordinate, said at least one further state being representative of said measurement errors, wherein said represented errors are non-zero mean errors,” as recited in claim 27.

The Office Action alleges, however, that Riley teaches above-quoted features of claim 27, and refers to Riley at “Page 4, Paragraph [0044] - Page 5, Paragraph [0051], Page 6, Paragraphs [0069]-[0071] and Page 8, Paragraph [0084].” Office Action, p. 3. Applicants respectfully disagree with the allegations in the Office Action. For example, ¶¶ [0044] to [0051] of Riley disclose using GPS pseudoranges to determine a forward link calibration value (FLC), which “is defined as the time difference between the time stamp on the data being transmitted by the mobile station and the actual transmission time.” Riley, ¶ [0042]. Moreover, ¶¶ [0069] to [0071] of Riley disclose that a handset (i.e., mobile station) position can be determined using a GPS receiver, which in turn can be used to determine a sector antenna position. And, ¶ [0084] of Riley discloses that “the mobile station position (value and error estimate), mobile station timing offset (value and error estimate), and pseudorange measurement (value and error estimate) are used to improve the base station position (value and error estimate) and base station timing offset (value and error estimate).” However, in these portions of Riley cited in the Office Action, or in any other portion of Riley, there is no teaching or suggestion of “providing in said statistical filtering at least one further state in addition to said at least one location coordinate, said at least one further state being representative of said measurement errors,” as recited in claim 27. Furthermore, Applicants note that Riley also does not teach or suggest “wherein said represented errors are non-zero mean errors,” as recited in claim 27, which is admitted by the Office Action at pp. 3-4.

The Office Action also alleges that Riley teaches “determining from said state-based statistical filtering said at least one location coordinate of said terminal,” as recited in claim 27, and refers to pp. 2-3, ¶¶ [0015] and [0028], and p. 7, ¶ [0082] of Riley. Office Action, p. 3. Applicants respectfully disagree. Riley’s ¶ [0015] discloses that the “position and timing offset of the mobile station is determined from global position satellites or from a number of quality signals from base stations having known positions and timing offsets.” Riley also discloses that multiple measurements of signal transmission between the mobile station and the base station (whose position is to be determined) can be input to a conventional computation procedure, such as a Kalman filter, to determine the position of the base station. *See Id.* However, this portion of Riley does not teach or suggest “determining from said state-based statistical filtering said at least one location coordinate of said terminal,” wherein the state-based statistical filtering includes a state representative of the non-zero mean measurement errors, as recited in claim 27.

Paragraph [0028] of Riley discloses that “[t]he CDMA network is capable of locating the position of the AFLT mobile station 22 and the hybrid mobile station 23 using the well-known AFLT technique of the mobile station measuring the time of arrival of so-called pilot radio signal from the base stations.” Applicants respectfully submit that, in contrast to the Office Action’s characterizations, ¶ [0028] of Riley does not teach or suggest “determining from said state-based statistical filtering said at least one location coordinate of said terminal,” wherein the state-based statistical filtering includes a state representative of the non-zero mean measurement errors, as recited in claim 27. Instead, ¶ [0082] of Riley discloses that the computation procedure for computing the position of the base station from the positions of the mobile stations “may use a conventional least square program, or a Kalman filter, as is commonly understood in the art of navigation (e.g., GPS).”

For at least the foregoing reasons, it is clear that Riley does not teach or suggest at least the claimed “method for determining at least one location coordinate of a mobile terminal” (emphasis added), and in particular, also fails to teach or suggest at least “providing in said statistical filtering at least one further state in addition to said at least one location coordinate, said at least one further state being representative of said measurement errors, wherein said represented errors are non-zero mean errors,” and “determining from said state-based statistical filtering said at least one location coordinate of said terminal,” as recited in claim 27.

The Office Action relies on Phelts to allegedly cure the deficiencies of Riley. Phelts discloses a “multipath and tracking error reduction method for spread-spectrum receivers.” Phelts, Title and Abstract. The Office Action alleges that Phelts teaches that “[m]ultipath errors are not zero mean.” Office Action, p. 4. Applicants submit that despite its disclosure of non-zero mean multipath errors and filters 174 and 186 (*see Id.* at ¶¶ [0075] and [0079]), Phelts’s method is for eliminating or reducing the non-zero multipath tracking errors. *See Phelts* at, e.g., ¶¶ [0012]-[0014]. Applicants submit that Phelts does not teach or suggest using the non-zero multipath tracking errors in determining the location of a GPS receiver 54. In particular, Phelts does not teach or suggest, among other things, “providing in said statistical filtering at least one further state in addition to said at least one location coordinate, said at least one further state being representative of said measurement errors, wherein said represented errors are non-zero mean errors,” and “determining from said state-based statistical filtering [that includes said at least one state being representative of said non-zero mean measurement errors] said at least one location coordinate of said terminal,” as recited in claim 27 (emphasis added). Therefore, Phelts does not cure the deficiencies of Riley. Even assuming Phelts could have been combined with

Riley, as suggested by the Office Action (and to which Applicants do not concede), such a combination would not have resulted in Applicants' claimed invention, as recited in claim 27.

The Office Action also relies on McBurney to allegedly cure the deficiencies of Riley and Phelts. As discussed in Applicants' Amendment filed on March 16, 2009, McBurney teaches that "the user 11 recognizes that most of the errors in the sensor-determined altitude and in the GPS-determined altitude have zero mean random components." McBurney, col. 12, lines 36-39 (emphasis added). McBurney further teaches that the state space models use zero mean variables. See McBurney, col. 12, lines 55-67. McBurney, however, does not teach or suggest, among other things, "providing in said statistical filtering at least one further state in addition to said at least one location coordinate, said at least one further state being representative of said measurement errors, wherein said represented errors are non-zero mean errors," and "determining from said state-based statistical filtering [that includes said at least one state being representative of said non-zero mean measurement errors] said at least one location coordinate of said terminal," as recited in claim 27 (emphasis added).

The Office Action further relies on Hoshino to allegedly cure the deficiencies of Riley, Phelts, and McBurney. Hoshino discloses a "navigation system furnished with means for estimating error of mounted sensor." Hoshino, Title and Abstract. Hoshino, however, fails to teach or suggest at least Applicants' claimed "providing in said statistical filtering at least one further state in addition to said at least one location coordinate, said at least one further state being representative of said measurement errors, wherein said represented errors are non-zero mean errors," and "determining from said state-based statistical filtering [that includes said at least one state being representative of said non-zero mean measurement errors] said at least one location coordinate of said terminal," as recited in claim 27 (emphasis added).

For at least the foregoing reasons, Riley, Phelts, McBurney, and Hoshino, whether taken alone or in any combination, do not teach or suggest at least the above-quoted features recited in independent claim 27. Independent claim 27 is thus nonobvious over the cited references, and should be allowable. Dependent claims 28-33 should also be allowable at least by virtue of their dependence from base claim 27. Although of different scope, each of independent claim 34, 35, 43, 44, and 50 recites features similar to those recited in independent claim 27. Thus, each independent claim 34, 35, 43, 44, and 50 should also be allowable at least for the same reasons as claim 27. Dependent claims 36-42, 45-49, 51, and 52 should also be allowable at least by virtue of their respective dependence from base claim 27, 34, 35, 43, 44, or 50. Applicants therefore respectfully request withdrawal of the rejections under 35 U.S.C. § 103(a).

Conclusion

Because pending claims 27-52 are not rendered obvious in view of the cited references, Applicants respectfully request reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

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